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Terrorist Resources, Proclivity for Attacks, and an Effective Counterterrorism Framework

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Abstract

This paper proposes a counter-terrorism (CT) framework in terms of three types of CT policies—i.e., offensive, defensive, and confidence-building measures (CBMs)—targeted at a terror outfit that is either resource-constrained or resource-abundant. It argues that defensive measures are a ubiquitous element of CT, as these can prove effective irrespective of whether the targeted terrorist group is resource-abundant or resource-constrained. On the other hand, CBMs have limited applicability as these are demonstrated to be of use only against a resource-rich terror outfit; and so are offensive CT measures, which are effective only when targeted at a resource-constrained group.

Introduction

Terrorism is defined as the "premeditated use or threat of use of violence by individuals or sub-national groups to obtain political, religious, or ideological objectives through intimidation of a large audience usually beyond that of the immediate victims."[1] Terrorists mimic randomness to generate fear and panic, and it is a formidable challenge for the targeted country's government to formulate a strategy that optimally utilises its counterterrorism (CT) resources.[2] Targeted countries are required to invest in their intelligence network as a critical part of their CT efforts.[3] They must also examine the threat posed by various terror groups in terms of their resources and proclivity for conducting attacks, as this present study aims to show.

The majority of deaths from terrorist attacks in different parts of the globe—nearly 58 percent in 2018—are claimed by only four terrorist organisations, namely the Taliban, ISIL, the Khorasan Chapter of the Islamic State, and Boko Haram.[4] Radical doctrines rooted in Wahhabi Islam provide the crucial common denominator for all four groups, even though their strategic objectives may vary. Indeed, historically, many terror attacks have been motivated by religious fundamentalist ideologies of the nature described by Gilling (1992)[5] and Pratt (2006),[6] with religious fundamentalism serving as a political doctrine rather than a spiritual faith (Tibi, 2002).[7]

The purpose of the present paper is to propose a CT framework in terms of three types of CT policies—offensive, defensive, and confidence-building measures (CBMs)—targeted against a terror outfit that is either resource-constrained or resource-abundant. Defensive CT efforts attempt to reduce the optimal number of terror strikes by reducing the (net) operational efficiency with which a terror outfit can attack certain targets. An example is the Anti-Infiltration Obstacle System (AIOS)—a double-row concertina wire fence constructed by the Indian Army along the Line of Control (LoC) to inhibit the infiltration of terrorists from Pakistan-occupied Kashmir (PoK).[8]

For their part, financial and other sanctions or even pre-emptive strikes aimed at destroying the assets of terror outfits constitute offensive CT. For example, a major offensive called 'Operation All Out' targeting the top leadership and operational capabilities of NDFB(S) was executed by Indian security forces in Assam, Nagaland and Bhutan in December 2014, in the aftermath of attacks carried out by the outfit which killed over 80 people.[9] Such measures are usually strategic in scope, as opposed to the tactical nature of most defensive measures.

Lastly, incentives may also be given to members or functionaries of a terror outfit in order to induce them to surrender. To this end, so-called confidence-building measures (CBMs) may be undertaken by the government. 'Operation Sadbhavana' is an example, launched by the Indian Army in 1998 in rural areas adjoining the LoC.

This paper demonstrates that a government's CT approach towards an outfit is contingent upon the specific characteristics of that outfit such as its intrinsic propensity for violence, its operational efficiency, and the resources available to it. Therefore, if the specifics of two outfits vary, then a government's CT approach towards them may also vary.

Arce and Sandler (2005) are of the view that governments tend to prefer deterrence over preemption because of coordination failure in the provision of CT effort. The present analysis contributes to the existing CT literature by establishing and contrasting the limited applicability of offensive CT and CBMs with the widespread utility of defensive CT, without taking recourse to the 'coordination failure' argument.

In reality, a government's CT strategy may involve a combination of different categories of CT measures. For instance, governments often engage in back-channel negotiations with certain terror outfits, even as operations against those groups continue on the ground. Moreover, CT measures (as well as the CT strategy as a whole) chosen by a government to target an outfit may evolve over time, driven by alterations in the outfit's nature. For example, an outfit that previously was not resource-constrained, may start suffering from paucity of resources over time due to a decline in operational efficiency. Such a change necessitates a corresponding evolution of CT strategy to be employed against the outfit.

An important feature of the present analysis is to characterise equilibria under two different scenarios: one where a concerned terror outfit is resource-abundant, i.e., it has sufficient resources to achieve its desired level of terror activity; and another where the terror outfit is resource-constrained and therefore cannot achieve its desired activity level. This is the case of 'corner solution'. Results and policies, to a large extent, are hinged on whether the equilibrium is an interior equilibrium or a corner solution. This paper demonstrates that while offensive CT is effective only against resource-constrained outfits, CBMs work only against those that are resource-abundant.

Introduction

Sandler and Siqueira (2006) theorised that nations confronted by a common terrorist threat can rarely achieve a proper policy mix between deterrence and pre-emption through leadership.[10] The present analysis sharply differs from this thesis. First, this paper does not focus on coordination and externality-related issues between targeted countries when confronted by a common terrorist threat, and therefore it limits its structure to include only one targeted country. Second, in this analysis, all payoffs are derived endogenously from the respective utility functions of each group.

The next section presents the basic model involving terror outfits and the targeted country's government. Section 3 addresses the problem facing the targeted country, and discusses the ramifications of the results derived in Section 2 on its CT policy. Section 4 discusses the measurement of various parameters pertaining to terror outfits as characterised in Section 2 and provides a ranking of some of the groups mentioned in Section 5, which provides case studies describing the real-world applications of some CT strategies and their consequences. The closing section summarises the key points of the analysis and provides potential directions for future research.

Introduction

> " Terrorists mimic randomness to generate fear and panic, and it is a formidable challenge for the targeted country's government to optimally utilise its CT resources. "

Model

This section provides a model of internally financed terrorism. Specific forms of the different functions are assumed to obtain closed-form solutions.

Suppose there are *n* independent terror outfits, T_i *(i=1,...,n)*, operating in a country whose government aims to minimise the total number of terror attacks conducted by all *n* outfits. An arbitrary terror outfit T_i *(i ∈ 1,...,n)* initially owns a resource endowment $R_i > 0$, a part of which it allocates to conduct terror activities, while the remaining part is spent on non-terror activities. The terror activity of T_i, denoted by A_i, represents the level or intensity of its terror attacks, and the expenditure on non-terror activities, X_i, generally takes the form of expenditure on education, health, insurance, housing and similar other benefits for the members of a terror organisation and their families over and above the subsistence consumption of goods and services. Most of these are consumption expenditures and hence we refer to X_i as consumption.[11] Modeling subsistence consumption explicitly, as done in the Appendix, does not qualitatively change any of the paper's results.

Therefore, we assume that a terror group draws utility from a basket of consumption goods and terror strikes. Let the payoff function of T_i *(i=1, 2)* be given by

$$U_i = X_i + \alpha_i A_i \qquad (1)$$

where α_i (≥ 0) is the parameter representing its intrinsic propensity for violence. A larger α_i implies that the *i*[th] terror group is more hardline. Hence, α_i captures the fundamentalism which drives terrorism. On the other hand, a lower α_i may imply that the outfit is more practical and politically oriented.[12] Given that X_i represents consumption, α_i may be interpreted as the outfit's willingness to give up current consumption in favour of terrorist activity. In the extreme scenario where α_i is zero, the outfit would derive no utility from terrorism in the absence of external intervention, and would therefore abstain from terrorism. Note that in our formulation, we have assumed that the utility function is linear and separable in its two arguments, X_i and A_i.[a] Both X_i and A_i are assumed to be continuous.

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a   To justify this form, first note that we do not find any strong reason as to why marginal utilities of terror activity and non-terror activity should be dependent on each other. Hence, the utility function should be separable in A_i and X_i. Secondly, since X_i is the remaining resource endowment of the outfit after expenditure on terror activities, the utility function is reduced to a quasi-linear form $U_i (A_i, X_i) = u_i (A_i) + X_i$. Finally, since we are interested in closed-form solutions, we have chosen the simplest (linear) form of $u_i(A_i) = \alpha_i A_i$, where α_i is a parameter. In fact, the linear or quasi-linear utility form helps to explain the possibility of corner solutions in the paper. Shapiro and Siegel (2007) observe that curtailing terror funding "*may be ineffective until a critical threshold is reached*", after which "*further government actions have a disproportionately large impact*", and this is exactly the consequence which follows in our linear specification, if R_i is reduced via offensive CT. See: Shapiro and Siegel, "Underfunding in Terrorist Organizations," *International Studies Quarterly*, 2007, 51, 405-429, https://www.jstor.org/stable/4621720.

Let the associated cost to terror group i of conducting A_i terror strikes be

$$C_i(A_i) = \frac{1}{2}\beta_i A_i^2 \qquad (2)$$

where $\beta_i > 0$ is the cost-efficiency parameter of terror outfit T_i, such that lower (higher) β_i represents higher (lower) efficiency. The increasing and convex cost function reflects the increased difficulty in conducting each successive attack. This can be driven by the increased alertness and enhanced response of governmental authorities and security forces, after each successive terror strike.

Given R_i, T_i's budget constraint is,

$$X_i + \frac{1}{2}\beta_i A_i^2 = R_i \qquad (3)$$

After incorporating the budget constraint into the utility function, T_i's optimisation problem becomes:

$$Max_{A_i} U_i = R_i - \frac{1}{2}\beta_i A_i^2 + \alpha_i A_i \qquad (4)$$

When an interior optimum exists, the first order condition is given by

$$-\beta_i A_i + \alpha_i = 0 \qquad (5)$$

This solves for

$$A_i = \frac{\alpha_i}{\beta_i} \equiv A_i^0 \quad \text{and} \quad X_i = R_i - \frac{1}{2}\frac{\alpha_i^2}{\beta_i} \equiv X_i^0 \qquad (6)$$

Therefore, incidence of terror attacks will be higher when the propensity for violence is high, and/or the efficiency of the organisation is high. It is also easy to see that the second order sufficient condition for utility maximisation is satisfied, because $\frac{\partial^2 U_i}{\partial A_i^2} = -\beta_i < 0$. Hence, the interior equilibrium exists if and only if $R_i \geq \frac{1}{2}\beta_i\left(\frac{\alpha_i}{\beta_i}\right)^2 = \frac{1}{2}\frac{\alpha_i^2}{\beta_i}$. Note that each terror outfit's problem is solved independently of another's problem.

Further note that if the government steps up its defensive counter-terrorism efforts against a terror outfit, it increases the marginal cost of conducting a terror strike for that outfit. Consequently, it reduces the optimal number of terror strikes. However, the number of terror strikes an outfit conducts is independent of the size of its initial resource endowment. Thus, in interior equilibrium, any variation in R_i will lead to a corresponding equivalent variation in X_i.

Now consider the case when a terror group is resource-constrained, and is therefore unable to conduct its desired A_i^0 attacks. This happens when $R_i < \frac{1}{2}\beta_i \left(\frac{\alpha_i}{\beta_i}\right)^2$. In this situation, the marginal benefit from terrorism exceeds its marginal cost, i.e., $-\beta_i A_i + \alpha_i > 0$. Then the optimal number of attacks by an outfit will be solved from the budget constraint (3) subject to $X_i = 0$. We call this a *corner* solution. Under this case, the entire initial resource endowment is spent on terrorism, and hence the optimal number of attacks is given by

$$A_i = \sqrt{\frac{2R_i}{\beta_i}}$$

(7)

Note that in interior equilibrium, the level of terror strikes does not depend on the resources the outfit holds. In contrast, in corner equilibrium, the level of terror strikes optimally conducted by the outfit will depend positively on the level of resources it has initially, but is independent of its inherent propensity for violence.[b] However, the parameter β_i has a similar effect directionally in both the cases.

Model

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b   It may be worth noting, however, that whether there will exist a corner solution or not will depend, to some extent, on the propensity for violence.

Implications for Counterterrorism Policy

In the present paper, the parameters that can be impacted by one or the other CT measure are β_is, α_is, and R_is. For instance, an increase in β_i could be achieved through *hardening* of potential targets of T_i,[c] or by deploying governmental intelligence agencies against the outfit on a priority basis. Such CT measures can broadly be viewed as defensive in nature.

If the targeted country's government takes a more proactive/offensive CT approach, then this would result in lower R_is. Consider, for example, the American campaign against the Afghan Taliban, following the attacks by al-Qaeda in the United States on 11 September 2001. Sustained airstrikes, aimed at degrading the Taliban's assets and resources, were at the core of the war effort.

The government may alternatively attempt to win the hearts and minds of the alienated population living in a terror-affected geographical area, in order to reduce the support for the terror outfit(s) operating in that area. In January 2007, for instance, President Gloria Arroyo of the Philippines attributed the CT success in countering Abu Sayyaf partially to CBMs including larger developmental initiatives involving trade and investment targeted at expanding the security sphere at the expense of the sphere of terror and transnational crime. Such *soft power* was effectively used in combination with *hard power*, to combat the outfit. Further, the government may try to nudge religious institutions of learning to accept greater state regulation and to modify their curriculum and academic discourse. All such measures would tend to lower the intrinsic propensity for violence of an outfit active in that area.

One of the most salient consequences of the analysis in Section 2 is the effectiveness of defensive CT irrespective of whether the targeted terror outfit is resource-constrained or not. An example is the sharp decline in terrorist incidents since 2005 following the construction of the aforementioned AIOS by the Indian Army. This is because as illustrated by Equations (6) and (7), the optimal number of terror attacks varies negatively with outfit-inefficiency β_i, which increases as a result of defensive CT. Indeed, Equation (7) also has a bearing on the applicability of offensive CT. Equation (7) gives the optimal number of terror attacks conducted by a resource-constrained terror outfit, and shows it to be an increasing function of resource-endowment R_i. Given that offensive CT causes R_i to decrease, it is effective against resource-constrained terror outfits, as exemplified by the success of the aforementioned 2014 offensive against

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c   That is, by increasing the security levels of potential targets, thereby rendering them more difficult or costly for a terror outfit to attack.

NDFB(S) militants.[13] A similar result can be obtained for resource-abundant outfits, in terms of the applicability of CBMs, using Equations (6) and (7). This leads to the proposition below.

Proposition 1: In the case of self-financed terrorism:

a) Defensive CT is effective against all terror outfits;

b) Offensive CT is effective against resource-constrained terror outfits; and

c) CBMs are effective against resource-abundant terror outfits.

The following paragraphs discuss the comparative efficacy of different policy measures.

Resource-abundance

First, assume that no outfit is resource-constrained. This means, both CBMs and defensive CT policy measures are effective. To consider the marginal impacts of these two policy measures in the vicinity of the initial interior equilibrium, it is easy to see from Eqn. (6) that

$$\left|\frac{\partial A_i}{\partial \beta_i}\right| = \frac{\alpha_i}{\beta_i^2} \gtrless \frac{1}{\beta_i} = \frac{\partial A_i}{\partial \alpha_i} \text{ according as } \alpha_i \gtrless \beta_i \tag{8}$$

Proposition 2: At the margin, the impact of defensive CT is directly proportional to the targeted outfit's inherent propensity for violence α_i, and inversely proportional to the square of its inefficiency parameter β_i.

The proposition is a straight-forward consequence of the expression for $\left|\frac{\partial A_i}{\partial \beta_i}\right|$ in Eqn. (8).

Corollary: Defensive CT tends to be more effective at the margin against those resource-abundant outfits which have a higher intrinsic propensity for violence or higher efficiency.

Proposition 3: At the margin, the impact of CBMs is inversely proportional to the targeted outfit's inefficiency β_i.

This proposition, once again, simply follows from the expression for $\frac{\partial A_i}{\partial \alpha_i}$ in Eqn. (8).

Corollary: CBMs tend to be more effective at the margin against those resource-abundant groups that are more efficient.

Implications for Counterterrorism Policy

Eqn. (8) further demonstrates that the choice between defensive CT policy and CBMs depends on whether the intrinsic propensity for violence is greater or lesser than the outfit's inefficiency in interior equilibrium. Since in interior equilibrium, $A_i = \frac{\alpha_i}{\beta_i}$, we arrive at the proposition below.

Proposition 4: The defensive bias of an ad hoc CT strategy versus CBMs, is positively associated with the level or intensity of terror activity of the concerned outfit.

This explains why victim countries often deal with low-intensity conflicts (LICs) with kid gloves, until they evolve over time into violent insurgencies that threaten the political stability of the region and the government's administrative machinery. It is under such situations that the government feels compelled to suppress the terrorists with an iron fist.

Resource-constraint

Now consider the case of resource-constrained outfits. Here, both defensive and offensive policies are effective. In the vicinity of corner equilibrium, the marginal impacts of the policy measures are obtained from Eqn. (7). This gives:

$$\left|\frac{\partial A_i}{\partial \beta_i}\right| = \frac{1}{\beta_i^{3/2}}\sqrt{\frac{R_i}{2}} \gtrless \frac{1}{\sqrt{2\beta_i R_i}} = \frac{\partial A_i}{\partial R_i} \text{ according as } R_i \gtrless \beta_i \tag{9}$$

Proposition 5: At the margin, the impact of defensive CT is directly proportional to the square root of the targeted outfit's resource endowment R_i, and inversely proportional to the 1.5th root of its inefficiency parameter β_i.

The proposition is a straightforward consequence of the expression for $\left|\frac{\partial A_i}{\partial \beta_i}\right|$ in Eqn. (9).

Corollary: Defensive CT tends to be more effective at the margin against those resource-constrained outfits which have more resources or higher efficiency.

Proposition 6: At the margin, the impact of offensive CT is inversely proportional to the square root of the targeted outfit's inefficiency parameter β_i, as well as to the square root of its resource endowment R_i.

This proposition, once again, simply follows from the expression for $\frac{\partial A_i}{\partial R_i}$ in Eqn. (9).

Corollary: Offensive CT tends to be more effective at the margin against those resource-constrained groups that have less resources or are more efficient.

Equation (9) further demonstrates that the choice between offensive versus defensive CT measures depends on the outfit's resource base as well as its operational efficiency, in the manner stated in the proposition below.

Proposition 7: The offensive versus defensive bias of ad hoc CT response varies negatively with the outfit's resource base as well as the outfit's operational efficiency.

This illustrates why even while dealing with resource-constrained outfits, the CT response in many countries prioritises offence over defence if and only if the outfit's resources are sufficiently low (or existing surveillance measures and/or security of potential high-value targets are adequate to begin with). Therefore, governments often act toughest against those resource-constrained outfits which are easiest to counter.

Strategy

The following proposition summarises the strategic implications of the above discussion on ad-hoc CT:

Proposition 8: CT strategy in the vicinity of the initial equilibrium should prioritise:

a) CBMs, if and only if the targeted terror outfit is resource-rich and sufficiently inefficient (or insufficiently violent);

b) Offensive measures, if and only if the targeted terror outfit is sufficiently resource-constrained (or sufficiently inefficient); and

c) Defensive measures for all other outfits.

The above proposition is logical. First, a resource-rich outfit has a stronger (or weaker) incentive to respond to CBMs if it is unable (or able) to carry out attacks with sufficient impunity, say due to high-value targets being sufficiently secure (or insecure); or if it is not too violent intrinsically, say because its objectives are political rather than ideological. Thus, follows the first statement. Second, an ad-hoc CT response should be predominantly offensive if and only if governmental efforts to neutralise/squeeze the outfit's assets have an immediate impact on the ability of the outfit to conduct attacks, without threatening to draw the government into a long-drawn military campaign such as the strategic

quagmire in Afghanistan which the United States found itself in against the well-funded Taliban insurgency. This rationalises the second statement. All other outfits are sufficiently efficient and are not highly resource-constrained. CBMs are therefore not very effective and offensive measures threaten to snowball into a long-drawn and expensive military campaign, or are simply ineffective given that the outfit has sufficient resources at its disposal. The government therefore tends to focus primarily on hardening potential targets. This justifies the third statement.

Implications for Counterterrorism Policy

> " The choice between offensive versus defensive CT measures depends on the outfit's resource base as well as its operational efficiency. "

P arameters used to describe a terror outfit, such as intrinsic propensity for violence, operational inefficiency, and resource endowments cannot be directly observed and must therefore be estimated using proxy variables for purposes of analysis. One way of estimating an outfit's proclivity for violence, for instance, is by using as a proxy variable the number of suicide attacks as a percentage of total attacks conducted by the group during the past year. Similarly, the operational efficiency $(1/\beta_i)$ of an outfit can be analysed using the lethality of the group's terror attacks, i.e., the number of fatalities per attack conducted by the group during the last year. Once this is done, the resource-endowment of a resource-constrained outfit can be calculated by substituting the value and the total number of attacks in Equation (7), although this method is inapplicable for resource-abundant groups.

Table 1 provides the values of these proxies for α_i and $1/\beta_i$ for the outfits mentioned in the case studies provided in Section 5, for the year 2020.

Table 1
Proxy Values for Parameters of Select Terror Outfits, 2020

Terror Outfit	Number of Attacks	Alpha	1/Beta
ISIS	387	1.6%	1.844961
Afghan Taliban	1886	2.2%	4.71474
TTP	21	14.3%	1.571429

Source: Global Terrorism Database.[14]

Two inferences can be made using the simple method of estimation applied above. First, a terror outfit that is conducting a greater number of attacks need not be intrinsically more violent than an outfit conducting a fewer number of attacks. For instance, TTP seems to be inherently far more violent than the Afghan Taliban and the ISIS despite conducting fewer attacks than those groups. This can be inferred because suicide attacks constituted only 1.6 percent and 2.2 percent of ISIS and Afghan Taliban attacks in 2020, respectively, while they constituted over 14 percent of attacks by TTP.

Estimation of Parameters

Second, the TTP is the least efficient outfit among the three in terms of lethality of terror strikes, despite conducting the highest percentage of suicide attacks. Specifically, the group's attacks resulted in only one-third the casualties per attack that the Afghan Taliban recorded in 2020, and were even less lethal than terror strikes conducted by ISIS the same year. This illustrates that the most violent outfit need not be the most efficient, and might even be the least efficient as shown in Table 1. On the other hand, the outfit which is most efficient, for instance, the Afghan Taliban in Table 1, need not be inherently the most violent.

> " One way of estimating an outfit's proclivity for violence is by using as a proxy variable the number of suicide attacks as a percentage of total attacks it conducted in the past year. "

Estimation of Parameters

This section discusses real-world instances of the application of different CT strategies and outlines their consequences. The aim is to evaluate their efficacy, and place these in context of the propositions derived in the present study.

Resource Crunch: Islamic State of Iraq and Syria (ISIS)

In the present study, the specification of a terror outfit's utility function implies that when faced with dwindling resources, resource-abundant terror groups attempt to reduce only consumption while maintaining their levels of terror activity. If the resource decline persists beyond the juncture where the outfit is having to survive at subsistence levels of consumption, i.e., the point at which the outfit becomes resource-constrained, then the group is forced to reduce terror attacks. Bearing this in mind, this case study looks at how the ISIS (also called Islamic State of Iraq and the Levant or ISIL) dealt with the resource crunch it began to face beginning in late 2015.

Successive events, including the decline in crude oil prices and heightened US-led aerial assaults targeting oil infrastructure and ISIS fighters, had compressed the outfit's revenues and forced it to depend on the ever-higher taxation of the approximately 8 million people residing in territory occupied under its so-called caliphate by late 2015. Along with the constant exodus of professionals and prohibitions on working women, these factors caused a rise in income inequality between ISIS fighters and common civilians, leading to growing public resentment.

Despite these adversities, ISIS continued to offer relatively generous wages to its rank-and-file over the succeeding few months, until its declining revenues presented the group with the stark choice of either reducing its wage payments or curtailing its high levels of violence.[15] The outfit chose the former, in accordance with the present study's characterisation of resource-abundant outfits, and discussion in Footnote 3.

Faced with depleting coffers, ISIS implemented salary cuts throughout its so-called caliphate in early 2016, instructing Raqqa inhabitants to settle public utility bills in American dollars sourced from the black market. The group, which used to boast about positioning a new gold-backed dinar as a challenge to the US's "dollar imperialism", was struggling to meet costs.

The outfit even put at stake the loyalty of many of its fighters, which had been generated during financially better times in significant measure by using attractive salaries and alluring honeymoon and infant bonuses. The group

had also eliminated the supply of goods like costless energy drinks and energy bars. An Islamic State directive sourced by research scholar Aymenn Jawad al-Tamimi of the Middle East Forum stated that "on account of the exceptional circumstances the Islamic State is facing, it has been decided to reduce the salaries that are paid to all mujahedeen by half, and it is not allowed for anyone to be exempted from this decision, whatever his position".

As far as attacks were concerned, the numbers showed resilience despite the revenue squeeze. Indeed, the attacks rose significantly from over 1,200 in 2015 to a peak of almost 1,500 in 2016, before declining below 1,400 in 2017. It was only thereafter that the number of terror strikes displayed a steep downward trend in accordance with this paper's Proposition 1, and settled below 400 in 2020—this corresponds to the period during which the outfit seems to have become resource-constrained (see Figure 1). This rapid decline in the outfit's capacity to conduct terror activities was therefore opposed to al-Tamimi's prediction of "a scenario of gradual decay and decline."[16]

Figure 1
Total Number of Terror Strikes by ISIS (2012-2020)
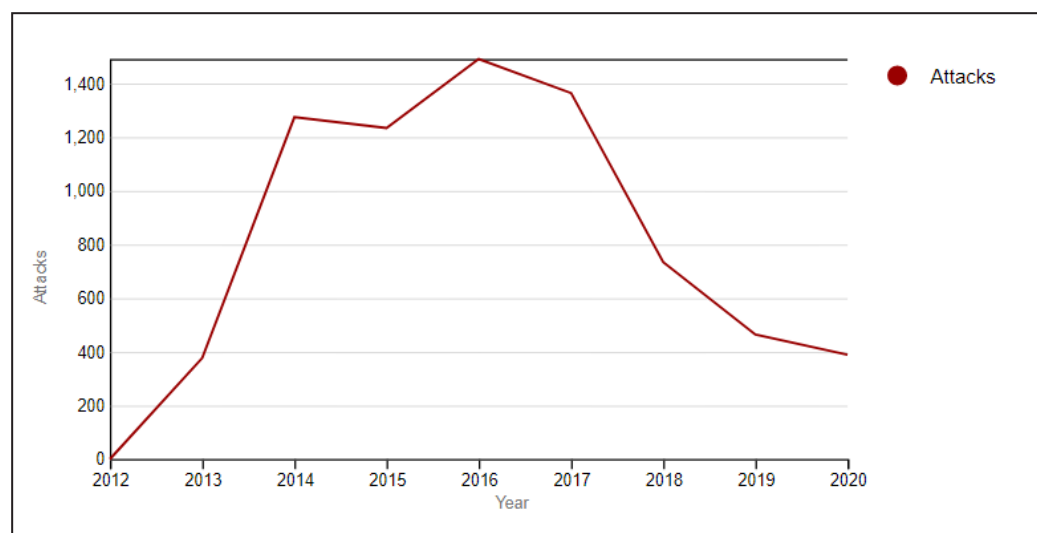
Source: Global Terrorism Database.[17]

Case Studies

Offensive CT: Afghan Taliban

The US-led Global War on Terror (GWOT) in Afghanistan, launched after the acts of terror conducted by al-Qaeda in September 2001, began with bold declarations of ending terrorism. Even the West's principal rivals like the Russian Federation and the People's Republic of China backed the campaign against radicalism. Dozens of thousands of military personnel, the most modern military hardware that existed at the time, and billions of dollars of funding made their way to Afghanistan to support the largest offensive CT campaign the world had ever witnessed until then.

As noted by former UNHCR representative to Rwanda, Saber Azam, 3,600 foreign troops, including 2,500 Americans lost their lives and another 34,000 were injured, and thousands suffered from post-traumatic stress disorder (PTSD) in the following 20 years.[18] Further, approximately 70,000 Afghan troops, 47,000 civilians, and 53,000 Taliban fighters died. Yet, in August 2021, the US and its allies deserted Afghanistan hurriedly, signing the country off to those they had promised to "smoke out". To understand the primary reason behind the debacle, it is necessary to comprehend the salience of Afghanistan's narcotics trade in fueling the Taliban.

Just as at the beginning of the GWOT, the Taliban are participating in all aspects of Afghanistan's opiate economy from poppy sowing, opium extrication, bootlegging, to imposing export levies on smugglers. The Taliban have relied on the narcotics trade as one of their principal income streams, with economies of scale incentivising higher production volumes.

The failure of the GWOT, therefore, can be attributed largely to its inability to effectively squeeze Afghanistan's illegal narcotics trade.[d] In the words of a US official with understanding of the matter, "We've (the U.S. and its allies) stood by on the sidelines and, unfortunately, allowed the Taliban to become probably the largest funded non-designated terrorist organization on the globe".[19] Thus, the overwhelming evidence has throughout been in favour of the Taliban being resource-abundant for the entire duration of the GWOT, despite US-led efforts targeted at changing the same.

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d   The United Nations Office on Drugs and Crime (UNODC) estimates this to account for more than 80 percent of the worldwide trade in opiates. See 67 MT of Drugs and Precursor Chemicals Destroyed by Counter Narcotics Police of Afghanistan (unodc.org).

Case Studies

In light of this paper's Proposition 8 and its discussion, it is therefore no wonder that the resource-rich Taliban's ability to conduct attacks was not curbed in any noticeable measure by the US-led offensive CT campaign. Indeed, widespread resentment against the presence of foreign troops on Afghan soil seemed to have fueled the spectacular increase in attacks conducted by the Taliban through an increase in the outfit's intrinsic propensity for violence (see Figure 2).

Figure 2
Number of Terror Strikes by the Afghan Taliban (2000-2020)
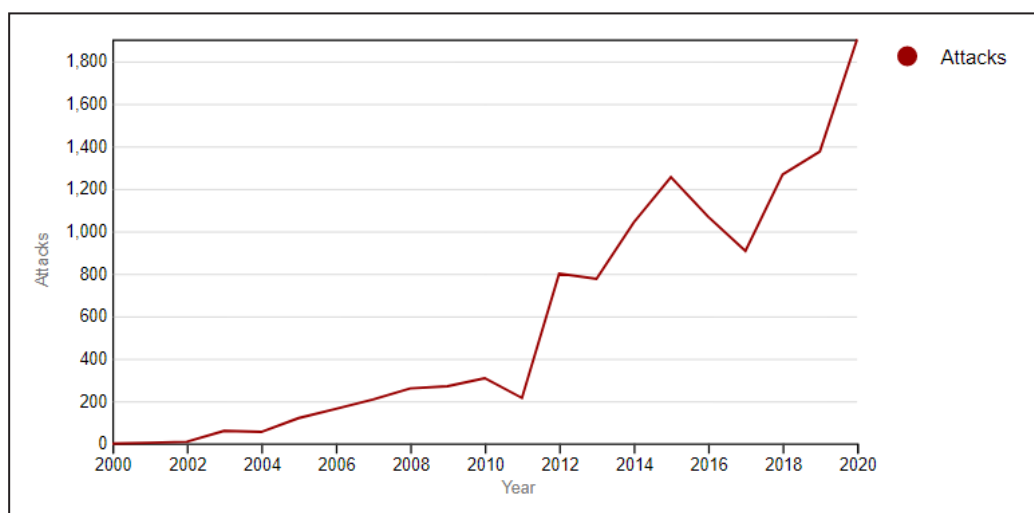
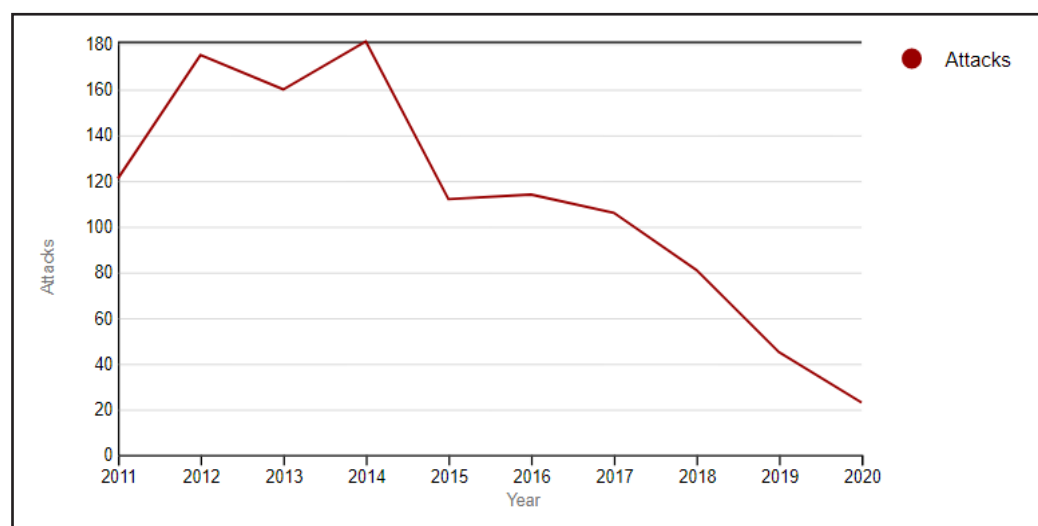*Source: Global Terrorism Database.*[20]

An approach based on securing critical infrastructure and Afghan State institutions while meaningfully engaging with the Taliban for a political resolution involving other ethnicities, would have had better odds of reducing violence over time. This strategy would have lowered the group's inherent propensity for violence while also increasing the costs of terrorist operations, in accordance with this paper's Proposition 1.

Case Studies

Offensive CT Vs. CBMs: Tehreek-e-Taliban Pakistan (TTP)

After several years of bloody fighting against the TTP—which gained global notoriety after its December 2014 attack on Army Public School in Peshawar that killed 149 people including 132 students—the Pakistan government decided in 2021 to embark on the route of confidence-building with the outfit. The attack had occurred a few months after Pakistan formally launched an offensive CT campaign, called Zarb-e-Azb, involving air strikes and limited military action in addition to regular cordon-and-search operations.

Despite the initial difficulty and violent reprisals against the State machinery, Zarb-e-Azb was a success, liberating almost the entirety of North Waziristan from the terrorists' control and severely degrading their resources. Consequently, the number of terror strikes conducted by the resource-constrained outfit witnessed a steep and consistent decline since 2014 in accordance with Proposition 1(b), as illustrated in Figure 3. Instead of continuing with the tried and tested formula of offensive CT against the severely weakened outfit, however, the Pakistani establishment decided to negotiate a ceasefire with TTP largely because of the (Afghan) Taliban's victory in Afghanistan.

Figure 3
Total Number of Terror Strikes by TTP (2011-2020)

Source: Global Terrorism Database.[21]

In effect since 9 November 2021, the ceasefire has now held for over a year, and yet Pakistan remains on tenterhooks because of an increased threat of terror strikes by TTP. Federal government sources in Pakistan have claimed knowledge of a senior leadership rendezvous of TTP in Afghanistan's Paktika to deliberate on the impasse in peace talks. Also on the agenda was the group's response to the killing of its commanders Omar Khalid Khorasani and Aftab Parkay. Such is the nature of the deadlock in negotiations between TTP and the government, that Pakistan's Ministry of Interior found it important to acknowledge the same in September 2022, and warn of the consequent discomfort within the TTP's ranks.[22]

The stalemate might seem surprising given that the indefinite ceasefire was announced by TTP as a CBM, after internal consultations. Moreover, the Pakistani administration had responded with its own CBM involving the release of almost 102 TTP prisoners.[23] A closer inspection, however, suggests that the ceasefire was an attempt by TTP to gain some much-needed respite after years of reversals at the hands of Pakistani security forces.

The ceasefire also provided the outfit with an opportunity to regroup and reorganise itself in Pakistan. The recent uptick in terror strikes and show of force through demonstration of arms in Swat and former Federally Administered Tribal Areas (FATA) regions point to the failure of CBMs, in accordance with Proposition 1 of this analysis.

As Pakistani journalist Rashed Rahman has noted, negotiated ceasefires have historically proved nothing more than "tactical measures that were abandoned as soon as the religious extremists felt they could return to the offensive."[24] The pattern replicated itself since 2004— "such edifying episodes as the terrorists playing football with decapitated soldiers' heads." Based on the findings of the present paper, therefore, the Pakistani establishment should take the initiative against the TTP by turning to a combination of offensive and defensive CT measures, rather than waiting for the outfit to dictate terms and escalate at a time of its choosing.

Defensive CT: AIOS

The AIOS constructed by the Indian Army between 2003 and 2005, along the LoC, resulted in a steep and sustained decline in successful infiltrations by terrorists from PoK. As senior journalist Shabir Ibn Yusuf noted in September 2022, infiltration bids have decreased every year in recent times from 419 in 2017, to 328 (2018), 216 (2019), 99 (2020), and 77 (2021).[25] Consequently, the incidents of killing in the erstwhile Indian State of Jammu and Kashmir declined from 1,642 in 2002 to 1,427 in 2003, further to 1,061 in 2004, 1,004 in 2005, 694 in 2006, 427 in 2007, and 261 in 2008 (see Figure 4).[26]

Case Studies

Figure 4
Fatalities in Jammu and Kashmir (1988-2000)
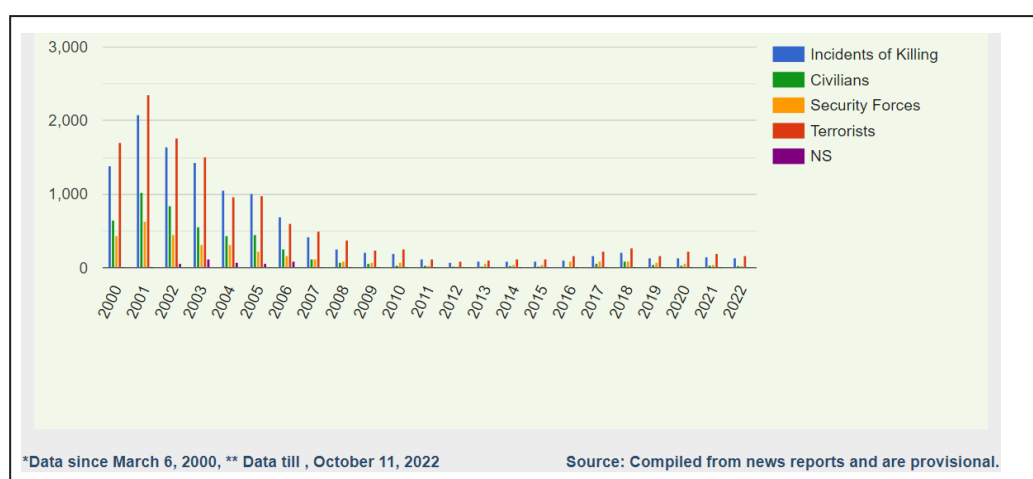
Source: South Asia Terrorism Portal.

The AIOS includes border fencing, electrical live wires, sensors, sirens, foot patrols, floodlights as well as other surveillance devices like hand-held thermal imagers. The success of this defensive CT endeavor is especially spectacular given that the AIOS is constructed along one of the most hostile terrains globally, that experiences extensive snowfall and avalanches during winters as well as landslides and floods during monsoons—this is in accordance with Proposition 1(a) of this paper.

In recent years, the Indian Army has implemented an effective counter-infiltration strategy and increased the induction of different platforms to enhance the surveillance architecture, apart from maintaining stricter vigil along the LoC. In 2021, the Ministry of Defence stated that "(the Indian) Army has adopted a robust counter-infiltration strategy which has an appropriate mix of technology and human resource put together to check infiltration effectively. Innovative troops deployment, proactive use of surveillance and monitoring devices, and the Anti Infiltration Obstacle System (AIOS) has enhanced the ability to detect and intercept militants attempting to infiltrate/exfiltrate."[27] The sustained decline in infiltration attempts mentioned earlier, comes as no surprise therefore, and is expected to sustain in the future.

Case Studies

The present work explored the impact of various CT measures targeted against self-funded terror outfits. A key inference borne out of this effort is that defensive measures are a ubiquitous component of CT. This is because such measures reduce the efficiency with which terror outfits can use their scarce resources, thereby making them a reliable choice in the context of any CT effort. In contrast to the ubiquity of defensive measures, this paper finds CBMs and offensive CT measures to have limited applicability, as these are demonstrated to only be of use against a resource-rich and a resource-constrained terror outfit, respectively.

CBMs can inhibit the activity of resource-rich terrorists by reducing their inherent propensity for violence, while offensive measures can curtail the activity of a resource-constrained terror group by causing the degradation of its resources. This contributes to the existing literature which only demonstrates the general *over-investment* in defensive measures and *under-investment* in offensive measures,[28] the inability of countries to arrive at the optimal CT mix between offence and defence when faced with a common terrorist threat,[29] and the inability of the State to win a *war-on-terror* using preemption alone as long as the marginal cost of preemptive measures is increasing.[30]

The importance of this present analysis lies in its novel rationalisation of the omnipresence of defensive CT on the basis of the above-mentioned *efficiency-of-resource-use* hypothesis. This paper specifically demonstrates that when dealing with a resource-abundant terrorist group, the strategy should be biased toward defensive CT and away from CBMs with higher level or intensity of terror activity, and vice versa. In the context of resource-constrained outfits, on the other hand, the strategy should be biased away from offensive CT and toward defensive CT if the terror outfit has a higher resource base or is more operationally efficient. These insights are applicable to CT efforts worldwide, as the case studies provided in Section 4 amply demonstrate.

The paper also suggests ways by which the parameters pertaining to a terror outfit can be quantified using proxy variable estimation, and provides an example in Section 4 involving terror outfits mentioned in the case studies provided in Section 5. It readily followed that a terror outfit conducting a greater number of attacks need not be intrinsically more violent than an outfit conducting a fewer number of attacks, and the most violent outfit need not be the most efficient, and might even be the least efficient. On the other hand, the outfit which is most efficient need not be inherently the most violent.

Conclusion

A logical extension of this work would be to scrutinise real-world applications of various CT strategies and their effectiveness by quantifying the resulting variations in parameters using proxy variables for the same, as discussed in Section 4. This would enable an estimation of the sensitivity of terror activity to variations in each parameter as estimated by its respective proxy variable. ◉RF

> " This paper offered a novel rationalisation of the omnipresence of defensive CT on the basis of the *efficiency-of-resource-use* hypothesis. "

Conclusion

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Appendix

Let total consumption $X = X_s + X'$, where $X_s > 0$ and $X' \geq 0$ denote subsistence and non-subsistence consumption respectively. Then T_i's choice variables are A_s and X'. In interior solution (with $X' > 0$ and $X > X_s$), the level of terror attacks and consumption (X) both remain the same as in Eqn. (6). In corner solution (with $X' = 0$ and $X = X_s$), on the other hand, the number of attacks become

$$A_i = \sqrt{\frac{2(R_i - X_S)}{\beta_i}}$$, which is lower than the level in the absence of a positive

minimum subsistence consumption. However, it is easy to verify that while thresholds will vary (arrived at by replacing R_i with $R_i - X_s$), all subsequent results remain unimpacted qualitatively.

Appendix

Endnotes

1   Daniel G. Arce and Todd Sandler, "Counterterrorism: A Game-Theoretic Analysis," *Journal of Conflict Resolution*, 2005, 49(2), 183-200.

2   Aditya Bhan and Tarun Kabiraj, "Operational Externalities and counter-terrorism," *Indian Economic Review*, 2019, 54(1), 171-187.

3   Daniel G. Arce and Todd Sandler, "Terrorist signalling and the value of intelligence," *British Journal of Political Science*, 2007, 37(4), 573-586.

4   Institute for Economics and Peace, *Global Terrorism Index, 2019, Measuring the Impact of Terrorism*, Sydney, Institute for Economics and Peace, 2019, http://visionofhumanity.org/app/uploads/2019/11/GTI-2019web.pdf.

5   Bryan Gilling, *Be Ye Separate: Fundamentalism and the New Zealand Experience* (Red Beach: Colcom Press, 1992).

6   Douglas Pratt, "Terrorism and Religious Fundamentalism: Prospects for a Predictive Paradigm," *Marburg Journal of Religion*, 2006, 11(1).

7   Bassam Tibi, *The Challenge of Fundamentalism: Political Islam and the New World Disorder* (Updated Edition, Los Angeles: University of California Press, 2002).

8   The effectiveness of AIOS is discussed in the fourth and final case study in Section 5.4.

9   Devparna Acharya, "Assam Live: Security forces, NDFB(S) encounter in Chirang along India-Bhutan border," *Firstpost*, December 26, 2014, www.firstpost.com/india/assam-live-security-forces-ndfbs-encounter-in-chirang-along-india-bhutan-border-2013001.html.

10   Todd Sandler and Kevin Siqueira, "Global Terrorism: Deterrence versus Pre-Emption," *Canadian Journal of Economics*, 2006, 39(4), 1370-1387.

11   It is these perks and inessential privileges which a terror outfit withdraws, when faced with shortage of funds. For example, as noted in a *One India* article on September 4, 2017, Pakistan-based terror outfits significantly reduced the salaries of field operatives as well as compensation to the families of deceased operatives after suffering severe reverses in the Kashmir Valley in 2017 (https://www.oneindia.com/india/salaries-of-terrorists-restructured-here-is-what-they-earn-2535872.html). The Islamic State of Iraq and Syria (ISIS) had, in similar vein, slashed perks and salaries of its operatives in its Syrian stronghold of Raqqa by up to 50 percent according to an NDTV article on February 16, 2016 (https://www.ndtv.com/world-news/isis-faces-budget-crunch-killing-perks-and-slashing-salaries-1278100).

12   X. Shan and J. Zhuang, "Subsidizing to disrupt a terrorism supply chain – a four-player game," *Journal of the Operational Research Society*, 2014, 65, 1108-1119.

13   Sushil Kumar Sharma, *Operation All Out against Bodo Militants: What Next?*, New Delhi, Manohar Parrikar Institute of Defence Studies and Analyses, 2016, https://idsa.in/issuebrief/operation-all-out-against-bodo-militants_sushilksharma_020210.

14   University of Maryland, *Global Terrorism Database,* Global Terrorism Database (umd.edu).

15   As Natalie Ilsley noted in a *Newsweek* article on September 23, 2015, cities including Raqqa and Mosul had witnessed the exodus of professionals and their families (ISIS Is Facing a Cash Crunch in the Caliphate (newsweek.com)). This led to the ISIS economy suffering from a harmful brain-drain with consequently inhibited growth prospects.

16   The quotations attributed to al-Tamimi are as mentioned in an NDTV article on February 16, 2016, which acknowledged though that ISIS continued to control an expansive swathe of territory at the time (ISIS Faces Budget Crunch, Killing Perks And Slashing Salaries (ndtv.com)).

17   University of Maryland, *Global Terrorism Database,* GTD Search Results (umd.edu).

18   Saber Azam, "Afghanistan: What Went Wrong?," *Inter Press Service News Agency*, December 6, 2022, Afghanistan: What Went Wrong? | Inter Press Service (ipsnews.net).

19   The quotations are as mentioned in a 2021 article in al Jazeera, which also quotes the same official as claiming that "the U.S. and international partners have continued to pull out and not addressed poppy cultivation" (Opium: Afghanistan's drug trade that helped fuel the Taliban | Business and Economy News | Al Jazeera).

20   University of Maryland, *Global Terrorism Database,* GTD Search Results (umd.edu).

21   University of Maryland, *Global Terrorism Database,* GTD Search Results (umd.edu).

22   The stalemate in negotiations discussed here is as per a recent article in India TV News (Pakistan on high alert amid heightened risk of terror attacks by TTP | World News – India TV (indiatvnews.com)), which further cites the Ministry of Interior's notice as citing the possibility of TTP or its splinter groups seeking to exact revenge for the neutralization of their commanders by escalating terror activity over the coming days.

23   Ebad Ahmed, "POLITICS: WHAT ABOUT US?," *Dawn*, July 24, 2022, POLITICS: 'WHAT ABOUT US?' - Newspaper - DAWN.COM.

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26   Institute for Conflict Management, *South Asia Terrorism Portal,* datasheet-terrorist-attack-fatalities (satp.org).

Endnotes

27   This is as quoted in a March 10, 2021 article in The Kashmir Walla (Anti-Infiltration Obstacle System regularly upgraded along LoC: Defence Ministry (thekashmirwalla.com)). The piece identifies audit and improvement of intelligence collecting capacity, "reorientation of surveillance architecture to enmesh with counter-infiltration deployment", and enhancement of AIOS to incorporate surveillance assets as some of the steps taken by the Indian Army.

28   Todd Sandler, "Collective versus Unilateral Responses to Terrorism," *Public Choice*, 2005, 124(1/2), 75-93.

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30   Satya P. Das and Sajal Lahiri, "Why Direct Counter-Terror (CT) Measures Only May Fail: An Analysis of Direct and Preventive CT Measures," *International Journal of Economic Theory*, 2019 Online publication: doi: https://doi.org/10.1111/ijet.12235.

Endnotes

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